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09/514,436	02/28/2000	Lawrence A. Ray	77522DMW	8513

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PATENT LEGAL STAFF
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EXAMINER

YE, LIN

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 11/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/514,436

Applicant(s)

RAY ET AL.

Examiner

Lin Ye

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-7 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Fujimoto et al. U.S. Patent 6,035,074.

Referring to claim 1, the Fujimoto reference discloses in Figure 4 and 6-16, a digital camera for capturing an image of a scene (See Col. 3, lines 59-61), said digital camera comprising: a capture section (image input section 16) for capturing an image and producing image data; an electronic processing section (face image recognizing section 11-1) for processing the image data to determine the presence of one or more faces in the scene (See Col. 4, lines 12-18); face data (e.g., the area and coordinates of the recognized face image area) means associated with the processing section for generating face data corresponding to attributes of at least one of the faces in the image; a storage medium (RAM 12) for storing the image data; and recording means associated with the processing section for recording the face data (e.g., coordinates of the recognized face image area) with the image data on the storage medium (See Col. 7, lines 46-55 and Col. 6, lines 50-53).

Referring to claim 2, the Fujimoto reference discloses wherein the face data corresponds to the location (coordinate) of at least one of the faces in the image (See Col., 7, lines 52-55).

Referring to claim 3, the Fujimoto reference discloses wherein the electronic processing section further- provides an indication (recognition) that one or more faces have been detected (See Col. 11, lines 50-52).

Referring to claim 4, the Fujimoto reference discloses wherein a framing device (LCD display 2-1 in Figure 4) for framing the image, and wherein the electronic processing section provides an indication in the, framing device identifying the one or more faces that have been detected as shown in Figures 6 or 10.

Referring to claim 5, the Fujimoto reference discloses wherein the framing device is an electronic display device that reproduces the image data as shown in Figure 7.

Referring to claim 6, the Fujimoto reference discloses wherein the recording means records the captured image data in the storage medium (RAM 12) in digital folders (such as image memory section 12-4 and recognition result memory section 12-5 in the RAM 12, see Col. 6, lines 50-53 and Figure 3) dedicated to images with a particular number of faces in the scenes (See Col. 11, lines 50-53).

Referring to claim 7, the Fujimoto reference discloses wherein the electronic processing section further includes a face recognition algorithm and a data base of known faces for generating facial identities (a plurality of face recognition color data for recognition of a face image), and wherein the recording means labels one or more images in the storage medium with the facial identities of known faces (recognition result memory 12-5, see Col. 7, lines 52-55 and Col. 13, lines 5-11).

Referring to claim 13, the Fujimoto reference discloses all subject matter as discussed with respected to same comment as with claim 1, and an orientation algorithm associated with the processing section for generating orientation data (XY coordinates defining the face image pickup area) indicating orientation of the image based on the orientation of at least one of the faces in the image (See Col. 9, lines 46-50).

3. Claims 49-52 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al. U.S. Patent 6,278,491.

Referring to claim 49, the Wang reference discloses in Figures 2-6, a method for verifying the presence of red eye in an image, said method comprising the steps of: providing image data representative of the image (11); processing the image data with a red eye detection algorithm for generating red eye signals indicating the presence of red eye in the image (See Figure 6, steps 163-164); and corroborating the existence of red eye by utilizing a face detection algorithm (See Figure 4, steps 123-124) to verify that the red eye signals correspond to the presence of one or more faces in the image (See Figure 4, step 126).

Referring to claim 50, the Wang reference discloses further comprising the step of correcting the red eye in the image (See Figure 6, steps 165-166).

Referring to claim 51, the Wang reference discloses all subject matter as discussed with respected to same comment as with claim 49.

Referring to claim 52, the Wang reference discloses all subject matter as discussed with respected to same comment as with claim 50.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of Bolle et al. U.S Patent 6, 301,440.

Referring to claim 8, the Fujimoto reference discloses all subject matter as discussed in respected claim 1, except the reference does not explicitly teach the exposure control section responsive to the presence of one or more faces for optimally exposing the image.

The Bolle reference discloses in Figure 2, a digital camera system including face detection (211), the exposure control for setting the exposure for the face region not for the dark/lightness of the background (See Col. 7, lines 36-42). The Bolle reference is an evidence that one of ordinary skill in the art at the time to see more advantages for the digital camera system can set the exposure for the face region which camera focus on it, not for the background so that camera can have more flexible option to optimally expose the interested foreground object. For that reason, it would have been obvious to see the capture section further includes an exposure and focus control section responsive to the presence of one or more faces for optimally exposing the image for are least one of the faces in the scene disclosed by Fujimoto.

Referring to claim 9, the Bolle discloses wherein the exposure control section optimally exposes the image for either the preponderance of faces in the scene (e.g. when a face is

closely framed by the user, the camera focus on the face from the detected human faces) or the largest face in the scene (see Col. 7, lines 36-40).

Referring to claim 10, the Bolle discloses a flash unit (illumination system 108 in Figure 1), and wherein the electronic processing section controls activation of the flash unit in order to optimize exposure for at least one of the faces in the scene as shown in Figure 3, flash control in imaging parameters (107).

6. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of Wang et al. U.S. Patent 6,278,491 and Nakamura et al. Japan Publication JP403144427 A.

Referring to claim 14, the Fujimoto reference discloses all subject matter as discussed in respected claim 1, except the reference does not explicitly teach a red eye detection algorithm for generating red eye signals indicating the presence of red eye in one or more of the faces.

The Wang reference discloses in Figures 2-6, automatic red-eye detection and reduction system includes a red-eye detector (22) that detects if an image contains a red eye in one or more of the faces. The Wang reference is an evidence that one of ordinary skill in the art at the time to see more advantages for the digital camera system having a automatic red eye detection so that to avoid destroys the natural appearance of the eyes in the image. For that reason, it would have been obvious to see the digital camera including a red eye detection algorithm associated with the electronic processing section (11-1) for generating red eye signals indicating the presence of red eye in one or more of the faces disclosed by Fujimoto.

However, the Wang reference does not explicitly show displaying a red eye warning to a user of the digital camera. The Nakamura reference discloses a warning for the red-eye

phenomenon is given by a display means (102, See CONSTITUTION, lines 11-12). The Nakamura reference is an evidence that one of ordinary skill in the art at the time to see more advantages for displaying a red eye warning to a user so that the user can give feedback, automatically reduction red-eye or take full manual control through some input device. For that reason, it would have been obvious to see the digital camera including a display device responsive to the red eye signals for displaying a red eye warning to a user disclosed by Fujimoto.

Referring to claim 15, the Wang reference discloses red eye correction means (red-eye reduction system 13) responsive to the red eye signals for correcting the red eye in said one or more faces as shown in Figures 2 and 7.

7. Claims 16-18, 22-23, 25-26 and 43-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of Wu et al. "Face Detection from Color Images Using a Fuzzy Pattern Matching Method", IEE Trans, Pattern Analysis and Machine Intelligence.

Referring to claim 16, the Fujimoto reference discloses all subject matter as discussed in respected claims 1 and 7, except the reference does not explicitly show the detail of the face recognition algorithm (stored in recognition color memory 12-2) which including two component, said algorithm comprised of a first component that comparison between facial shape models and facial probabilities assigned to image pixels within the region; and a second component that operates on the face candidate regions from the first component using a pattern matching technique.

The Wu reference discloses a face detection algorithm that is well suited for inclusion in a digital camera. The algorithm is for determining faces in the image by a first component that prescreens the image data to find one or more face candidate regions of the image based on a comparison between facial shape models and facial probabilities assigned to image pixels within the region; and a second component that operates on the face candidate regions from the first component using a pattern matching technique to examine each face candidate region of the image and thereby confirm a facial presence in the region; and an electronic processing section for processing the image data together with the algorithm for determining the presence of one or more faces in the scene (See Page 557-563). The Wu reference is an evidence that one of ordinary skill in the art at the time to see more advantages for the digital camera has a face detection algorithm that searches for image windows that seem likely to contain faces based on color characteristics which is fast and requires very small amounts of both program memory and trained state. For that reason, it would have been obvious to see the face recognition algorithm (stored in recognition color memory 12-2) which including two component, said algorithm comprised of a first component that comparison between facial shape models and facial probabilities assigned to image pixels within the region; and a second component that operates on the face candidate regions from the first component using a pattern matching technique disclosed by Fujimoto.

Referring to claim 17, the Fujimoto and Wu references disclose all subject matter as discussed in respected claims 1-2 and 16; and Fujimo reference also disclose an interface for transferring the processed image data and the face data to the storage medium whereby the

face data is stored with the processed image data on the storage medium (RAM 12) as shown in Figure 2.

Referring to claim 18, the Fujimoto and Wu references disclose all subject matter as discussed in respected to same comment as with claims 1 and 16.

Referring to claim 22, the Fujimoto and Wu references disclose all subject matter as discussed in respected to same comment as with claims 1 and 16.

Referring to claim 23, the Fujimoto reference discloses wherein the electronic processing section is responsive to the location of faces in the image in order to produce processed image data that is color balanced (recognition color changing section for balancing and adjusting the face recognition color without influences of the brightness of the photographing site) for the faces in the image (See Col. 11, lines 24-27).

Referring to claim 25, the Fujimoto reference discloses a display device (LCD 2-1) and wherein the electronic processing section is responsive to the location of faces in the image in order to produce processed data that is applied to the display device to identify the location of faces in image data displayed on the display device as shown in Figures 7 and 14.

Referring to claim 26, the Fujimoto reference discloses wherein the electronic processing section is responsive to the location of faces in the image in order to produce processed data that provides composition aids to a photographer using the camera (e.g. the face image can properly be picked up without missing of any portion of the face image which may other wise occur due to shakes, see Col. 12, lines 36-39).

Referring to claim 43, the Fujimoto and Wu references disclose all subject matter as discussed in respected to same comment as with claims 1 and 16.

Referring to claim 44, the Wu reference discloses where in the first algorithm operates more rapidly than the second algorithm (e.g. skin color detector more rapidly than the analysis pattern-matching technique).

Referring to claim 45, the Wu reference discloses wherein the first algorithm is substantially based on an algorithm denoted herein as the Wu algorithm and the second algorithm is substantially based on an algorithm denoted herein as the Schneiderman algorithm (pattern-matching technique).

Referring to claim 46, the Fujimoto and Wu references disclose all subject matter as discussed in respected to same comment as with claim 43.

Referring to claim 47, the Fujimoto and Wu references disclose all subject matter as discussed in respected to same comment as with claim 44.

Referring to claim 48, the Fujimoto and Wu references disclose all subject matter as discussed in respected to same comment as with claim 45.

8. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of Wu et al. "Face Detection from Color Images Using a Fuzzy Pattern Matching Method", IEE Trans, Pattern Analysis and Machine Intelligence and Bolle et al. U.S Patent 6, 301,440.

Referring to claims 19-21, the Fujimoto, Wu and Bolle references disclose all subject matter as discussed in respected to same comment as with claims 1, 8-10 and 16.

9. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of Wu et al. "Face Detection from Color Images Using a Fuzzy

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Pattern Matching Method”, IEE Trans, Pattern Analysis and Machine Intelligence and Wang et al. U.S. Patent 6,278,491.

Referring to claim 24, the Fujimoto, Wu and Wang references disclose all subject matter as discussed in respected to same comment as with claims 1, 8-10 and 16.

10. Claims 11-12 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of Ferrada U.S. 5,873,007.

Referring to claim 11, the Fujimoto reference discloses all subject matter as discussed with respected to same comment as with claims 1-3, but the reference does not explicitly show a composition algorithm associated with the face data and generating composition suggestions (composition guidance) for a user of the digital camera.

The Ferrada reference discloses in Figure 2, a picture composition guidance system for camera includes horizontal lines (30 and 32) and horizon guide 22 follows the “rule of thirds” is based on the theory that the human eye naturally looks to a point about two-thirds up a page (See Col. 2, lines 60-66); and a display device (LCD) for displaying the composition suggestion to the user (See Col. 37-47). The Ferrada reference is an evidence that one of ordinary skill in the art at the time to see more advantages for the camera using the composition principles such as location of the main subject in relation to a “rule of thirds” and with respect to a common line (upper or lower horizontal line) so that aids user to place the main subject in the appropriate areas of the picture and produces a compositionally pleasing image. For that reason, it would have been obvious to see the digital camera system including the guide for picture compositions associated with the location of the faces (main

subject) and generating composition suggestions (composition guidance) for a user of the digital camera disclosed by Fujimoto.

Referring to claim 12, the Ferrada reference discloses wherein composition suggestions include indication that following the law of thirds will lead to a more pleasing composition.

Referring to claim 27, the Fujimoto and Ferrada reference discloses all subject matter as discussed with respected to same comment as with claim 11.

Referring to claim 27, the Fujimoto and Ferrada reference discloses all subject matter as discussed with respected to same comment as with claim 12.

Referring to claim 29, the Fujimoto and Ferrada reference discloses all subject matter as discussed with respected to same comment as with claim 11, and the Fujimoto reference discloses wherein the predetermined composition principle is the size of the faces in relation to the overall image (e.g. it selects the largest one of the plural face image areas and coordinates of the face image areas stored in the memory, See Col. 11, lines 50-55).

Referring to claim 30, the Fujimoto and Ferrada reference discloses all subject matter as discussed with respected to same comment as with claim 11, and the Fujimoto reference discloses wherein the predetermined composition principle is location of the faces so as to prevent occlusion by edges of the frame (See Col, 12, lines 36-39 and the face image can properly be picked up without missing of any portion of the face image which may other wise occur due to shakes, see Col. 12, lines 36-39).

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11. Claims 32-37 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of McIntyre et al. U.S. 6,271,876.

Referring to claim 32-34, the Fujimoto discloses all subject matter as discussed in respected to same comment as with claims 1-2 and see Col. 6, lines 57-60, except the reference does not explicitly discloses the camera system is hybrid camera for capturing an image of a scene on both an electronic medium and film medium instead just a digital camera.

The McIntyre reference discloses in Figure 3, the hybrid camera has an image capture section for capturing an image with an image sensor (25) and producing image data; means for capturing the image on the film medium (30) in same time. The McIntyre reference is an evidence that one of ordinary skill in the art at the time to see more advantages for using both image sensor and film medium to capture image to provide a stereo image of the scene. For that reason, it would have been obvious to see the camera system is hybrid camera can capture an image with both image sensor and film medium and writing the face data on the film medium disclosed by Fujimoto.

Referring to claim 35, the Fujimoto and McIntyre references disclose all subject matter as discussed in respected to same comment as with claims 4 and 32.

Referring to claim 36, the Fujimoto and McIntyre references disclose all subject matter as discussed in respected to same comment as with claims 7 and 32.

Referring to claim 37, the Fujimoto and McIntyre references disclose all subject matter as discussed in respected to same comment as with claims 13 and 32.

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Referring to claim 40, the Fujimoto and McIntyre references disclose all subject matter as discussed in respected to same comment as with claims 1 and 32-34.

Referring to claim 41, the Fujimoto and McIntyre references disclose all subject matter as discussed in respected to same comment as with claims 12 and 32-34.

12. Claims 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of McIntyre et al. U.S. 6,271,876 and Bolle et al. U.S Patent 6,301,440.

Referring to claim 38, the Fujimoto, McIntyre and Bolle references disclose all subject matter as discussed in respected to same comment as with claims 8 and 32.

Referring to claim 39, the Fujimoto, McIntyre and Bolle references disclose all subject matter as discussed in respected to same comment as with claims 10 and 32.

13. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimoto et al. U.S. Patent 6,035,074 in view of McIntyre et al. U.S. 6,271,876, Wang et al. U.S. Patent 6,278,491 and Nakamura et al. Japan Publication JP403144427 A.

Referring to claim 42, the Fujimoto, McIntyre, Wang and Nakamura references disclose all subject matter as discussed in respected to same comment as with claims 14 and 32.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Lin Ye** whose telephone number is **(703) 305-3250**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R Garber can be reached on (703) 305-4929.

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Any response to this action should be mailed to:

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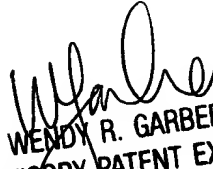
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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive,
Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Technology Center 2600 Customer Service Office whose telephone
number is (703) 306-0377.


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Lin Ye
November 17, 2003